

H.A

Notice of Allowability	Application No.	Applicant(s)	
	10/657,255	SUGAHARA, HIROTO	
	Examiner	Art Unit	
	Geoffrey Mruk	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 1 July 2005.
2. ☒ The allowed claim(s) is/are 1-16.
3. ☒ The drawings filed on 09 September 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

MSH 7/20/05
MANISH S. SHAH
PRIMARY EXAMINER

DETAILED ACTION

Election/Restrictions

Claim 1 is directed to an allowable product. Pursuant to the procedures set forth in the Official Gazette notice dated March 26, 1996 (1184 O.G. 86), claims 5, 9, 11, 14, and 15 are dependent on claim 1, previously withdrawn from consideration as a result of a restriction requirement, are now subject to being rejoined. Claims 5, 9, 11, 14, and 15 are hereby rejoined and fully examined for patentability under 37 CFR 1.104.

Since all claims previously withdrawn from consideration under 37 CFR 1.142 have been rejoined, the restriction requirement made in the Office action mailed on 23 February 2005 is hereby withdrawn.

Allowable Subject Matter

Claims 1-16 are allowed.

The following is an examiner's statement of reasons for allowance:

The primary reasons for allowance of claims 1-15 are that the applicant's claimed invention includes a pressure generating mechanism having a microcrack region formed in the plate member between neighboring active portions, the microcrack region including a large number of microcracks therein. It is this limitation, expressed in the claimed combination not found, taught or suggested in the prior art, that makes these claims allowable over the prior art.

The primary reasons for allowance of claim 16 are that the applicant's claimed invention includes a liquid droplet ejection device having a microcrack region formed in the plate member between neighboring active portions, the microcrack region including a large number of microcracks therein. It is this limitation, expressed in the claimed combination not found, taught or suggested in the prior art, that makes these claims allowable over the prior art.

United States patent number 5,729,264 to Pankert et al., teach an ink jet recording device where cross talk via the actuator device is reduced by the provision of slits between the pressure chambers. Due to these slits the actuator plate is split into a plurality of fingers, each finger comprising one of the pressure chambers. The electrode layers in adjacent fingers are electrically isolated by the slit between these fingers and the fingers themselves are mechanically substantially isolated by the slits (Column 5, lines 26-32).

United States patent number 6,328,432 B1 to Oota, teach an ink jet recording head having mending layers between the sidewalls and electrodes. The cracks have occurred on the sidewall due to the cutting work for a formation of the grooves, however, the solution containing the constituent elements of an oxide such as the PZT etc. penetrates into the cracks and solidifies to reinforce the sidewall. Further, since the irregularities in the sidewall surface are absorbed into the oxide material so that the adhesiveness and coverability of each of the electrode and the protective film are improved and resultingly the reliability is raised (Column 4, lines 39-47).

United States patent number 6,354,685 B1 to Ohashi, teach an on-demand ink jet printer head where the support piezoelectric blocks has effects of increasing the stiffness of a head layered body (which is composed of the vibration plate, a chamber plate, a supply plate, a pool plate and the orifice plate), decreasing pressure dissipation in the ink channel, reducing interference between adjacent ink chambers (Column 10, lines 65-67; Column 11, lines 1-4)

United States patent number 6,409,320 B1 to Kurihara et al., teach an ink jet printer head where grooves are formed in the thus-formed drive layers and separate adjacent drive portions from each other for high displacement efficiency (Column 4, lines 28).

United States patent number 6,560,871 B1 to Ramos et al., teach a semiconductor having increased fracture strength, where the ink expulsion elements may alternatively be piezo-electric transducers (Column 3, lines 43-44). The etching process of the present invention tends to increase the critical radius or radius of curvature of the micro-cracks and this in turn reduces the stress concentration in the substrate (Column 4, lines 50-54).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Art Unit: 2853

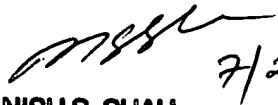
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey Mruk whose telephone number is (571) 272-2810. The examiner can normally be reached on 7am - 330pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GSM
7/19/2005

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 7/20/05
MANISH S. SHAH
PRIMARY EXAMINER